Adopt CHAPTER Env-Wt 900 to read as follows:

*CHAPTER Env-Wt 900  STREAM CROSSINGS*

*PART Env-Wt 901  PURPOSE AND APPLICABILITY*

*Env-Wt 901.01  Purpose.  The purpose of this chapter is to accommodate necessary stream crossings while:*

*(a)  Preserving the functions and values of existing stream channels; and*

*(b)  Supporting the restoration of impacted stream channels to their natural state.*


*Env-Wt 901.02  Applicability.  The rules in this chapter shall not apply to:*

*(a)  Drainage swales or ephemeral streams;*

*(b)  Normal agricultural operations as defined in RSA 21:34-a, II;*

*(c)  The construction or maintenance of farm roads or forest roads, provided such activities are completed in accordance with Env-Wt 303.04(u); or*

*(d)  Activities covered by any of the following notifications:*

*(1)  Routine roadway and railway maintenance activities, provided such activities are completed in accordance with Env-Wt 303.05(q);*

*(2)  Minimum impact forest management activities, provided such activities are completed in accordance with Env-Wt 303.04(e), (g), or (h);*

*(3)  Minimum impact agricultural activities, provided such activities are completed in accordance with Env-Wt 303.04(u); or*

*(4)  Minimum impact trail activities, provided such activities are completed in accordance with Env-Wt 303.04(y).*

*PART Env-Wt 902  DEFINITIONS*

*Env-Wt 902.01  "Aggradation" means the raising of the grade or level of the bed of a watercourse by the deposition of detritus, sediment or other  material.*

*Env-Wt 902.02  "Average stream approach channel slope" means the slope of the channel averaged from the deepest point of the crossing and the deepest point measured 200 feet upstream of the crossing for tier 2 and tier 3 stream crossings, and measured 100 feet upstream of the crossing for tier one stream crossings, as measured along the center line.*

*Env-Wt 902.03  "Bankfull flow" means the volume of flow in a watercourse at which water begins to overflow into the active floodplain.*

*Env-Wt 902.04  "Bankfull width" means the width of the wetted channel during bankfull flow.*

*Env-Wt 902.05  "Closed culvert" means a culvert that has a solid top, a solid bottom, and solid sides that connect the top and bottom..*

*Env-Wt 902.06  "Connectivity" means the state in which upstream and downstream reaches of a watercourse meet in a geomorphically stable situation that does not adversely affect the movement of aquatic species or the transport of sediment.*

*Env-Wt 902.07  "Designated river" means "designated river" as defined in RSA 483:4, VIII.*

*Env-Wt 902.08  "Designated river corridor" means the river corridor of a designated river.*

*Env-Wt 902.09  "Embedded" means, when referring to a stream crossing, buried within the stream bed to such an extent that water depths and velocities at a variety of flows within the crossing structure are comparable to those found in the natural channel upstream and downstream of the stream crossing.*

*Env-Wt 902.10  "Impaired"  means that the surface water does not support biological integrity, as determined by biological or stream channel integrity assessments.*

*Env-Wt 902.11  "National Flood Frequency (NFF) program" means a regression equation program developed by the United States Geological Survey (USGS) that estimates flood-peak discharges for every state, which can be downloaded for free at http://water.usgs.gov/software/nff.html.*

*Env-Wt 902.12  "Outstanding resource water" means a surface water that is subject to protection under Env-Wq 1708.05.*

*Env-Wt 902.13  "Riparian bank" means the area from the wetted extent of the bankfull width to the inland extent of the 100-year flood plain.*

*Env-Wt 902.14  "River corridor" means "river corridor" as defined RSA 483:4, XVIII.*

*Env-Wt 902.15  "Span structure" means a structure that does not disturb the stream channel or its banks.*

*Env-Wt 902.16  "Stream channel" means a channel that carries the bankfull flow.*

*Env-Wt 902.17  "Stream enhancement" means stream rehabilitation activities undertaken to improve water quality or ecological function of a watercourse that do not qualify as total stream restoration, including but not limited to in-stream or stream bank stabilization activities that restore one or more of the geomorphic variables such as dimension, pattern, and profile.*

*Env-Wt 902.18  "Stream simulation" means a method of designing and constructing a stream crossing structure, in which the structure created within the channel is as similar as possible to the natural channel in both physical structure and function, and which takes into account appropriate bed forms and streambed characteristics so that water depths and velocities within the crossing structure at a variety of flows are comparable with those found in the natural channel upstream and downstream of the stream crossing.*

*Env-Wt 902.19  "Tier one stream crossing" means a crossing that meets the criteria specified in Env-Wt 904.02.*

*Env-Wt 902.20  "Tier 2 stream crossing" means a crossing that meets the criteria specified in Env-Wt 904.03.*

*Env-Wt 902.21  "Tier 3 stream crossing" means a crossing that meets the criteria specified in Env-Wt 904.04.*

*PART Env-Wt 903  DESIGNATION OF STREAM CROSSINGS; APPLICATION FEES*

*Env-Wt 903.01  <u>Stream Crossings Categories</u> .*

*(a)    Stream crossings shall be categorized as tier one, tier 2, or tier 3.*

*(b)    Subject to (e), below, tier one stream crossings shall be classified as minimum impact projects.*

*(c)    Subject to (e), below, tier 2 stream crossings shall be classified as minor impact projects.*

*(d)    Subject to (e), below, tier 3 stream crossings shall be classified as major impact projects.*

*(e)    If the sum of the impacts of all crossings on the property exceeds 3,000 square feet or is equal to or greater than 200 linear feet along the thread of the stream channel, the project shall be classified as a major impact project.*

*Env-Wt 903.02  <u>Application Fees</u>.*

*(a)    The application fee for a tier one stream crossing shall be as specified in RSA 482-A:3, I(c) for a minimum impact project.*

*(b)    The application fee for a tier 2 stream crossing or tier 3 stream crossing shall be calculated as specified in RSA 482-A:3, I(c) based upon the sum of the square feet of impacts to the banks and channel bottom and other associated jurisdictional areas.*

*Env-Wt 903.03  <u>Information Required for a Stream Crossing Application</u>.*

*(a)    In addition to the information required in Env-Wt 501.02, for all stream crossing projects the applicant shall submit the following:*

*(1)    Plans showing the following information:*

*a.  The scale, north arrow, and at least three reference points outside of the construction disturbance area;*

*b.  Clearing limits showing all work areas covered by special project requirements with notes;*

*c.  Structure location with location of inlet and outlet inverts;*

*d.  Extension of channel excavation and filling;*

*e.  Road locations, edges, centerline, geometric description of curvature, widths, and curve widening;*

***f. Channel work identified including bank erosion control features, grade control, and channel linings; and***

***g. Estimated drainage area at the crossing location;***

*(2) Streambed details, with figures, which show the following:*

***a. The distance from the top of the right bank to the top of the left bank;***

***b. Average stream approach channel slope and percent gradient within the crossing, measured using a clinometer, hand level or other survey equipment;***

***c. Approximate elevations, spacing, diameters, and locations of rocks for steps, bankline, and other channel rocks for roughness;***

***d. Details for sediment retention structures, if any, within embedded structures; and***

***e. A visual estimate of dominant channel materials upstream, downstream, and if applicable, within the existing crossing;***

*(3) Existing crossing metrics on the plan, including:*

***a. Existing riparian zone, including the extent and type of existing vegetation surrounding or in the stream bank;***

***b. Existing crossing type and dimensions, including material, length, and dimensions; and***

***c. Existing tailwater control, including its location and materials, and pool configuration;***

*(4) The dewatering system as follows:*

***a. Estimates of the maximum flow anticipated during construction, including any summer storm estimates;***

***b. Location, height, and width of the diversion dam;***

***c. Sump locations, including estimate of necessary flow and sump capacity;***

***d. Backwater prevention method; and***

***e. Sediment treatment plan with methods, release point, and extent;***

*(5) Erosion and pollution controls as follows:*

***a. Any additional methods of controlling erosion;***

***b. A storm management plan, including but not limited to where to cover stockpiles and place straw bales.***

***c. Pollution control methods for pumps, fuel stations, and equipment storage;***

*(6)  Footings including the following:*

*a.  Estimate of bearing capacity; and*

*b.  Footing depth and width for bottomless arch or bridge; and*

*(7)  Structural details of the crossing, including the following:*

*a.  Structural section, gauge or thickness, and material, minimum and maximum cover limits;*

*b.  Structures, drawn to scale, on elevation view showing bed material location relative to structure,  and special backfill zones;*

*c.  Structural excavation quantity and total excavation estimate.*

*(b)  In addition to the information required in Env-Wt 501.02 and (a), above, for tier 2 - minor impact or tier 3 - major impact stream crossing projects, the applicant shall supply the following additional information:*

*(1)  Structure location including inlet and outlet inverts located with x, y, z coordinates or equivalent and taken from the long profile;*

*(2)  Streambed details, with figures, which show the streambed simulation materials and its extent, depth and length within the crossing;*

*(3)  Road locations, edges, centerline, geometric description of curvature, widths, and curve widening, p-line or x, y, z coordinates;*

*(4)  Channel information for the design reference reach including bank full width, bankfull depth, entrenchment ratio, sinuosity, flood prone width, a long profile that is 7-10 bankfull widths long with grade controls, pools and gradients shown, an appropriate reference reach cross section with channel details, reference reach pebble count, including a narrative explaining why the cross section is considered representative;*

*(5)  Pebble count upstream, downstream, and if applicable, within the existing crossing; and*

*(6)  The hydraulic calculation for the bypass pipe or channel size, length and gradient.*

*PART Env-Wt 904  DESIGN AND CONSTRUCTION OF STREAM CROSSINGS*

*Env-Wt 904.01  <u>General Design Considerations</u>.  All stream crossings shall be designed and constructed so as to:*

*(a)  Not be a barrier to aquatic organism passage and sediment transport;*

*(b)  Accommodate high flows, maintain low flows for aquatic organism passage, and preserve watercourse connectivity;*

*(c)  Not cause an increase in the frequency of flooding or overtopping of banks;*

*(d)    Preserve or restore connectivity;*

*(e)    Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and*

*(f)    Not cause water quality degradation.*


*Env-Wt 904.02  Tier One Stream Crossings.*

*(a)    A tier one stream crossing shall be a crossing located on a watercourse where:*

> *(1)    The contributing watershed is greater than 20 acres and less than or equal to 200 acres and the average stream approach channel slope is  less than or equal to 7.5% for:*
>
> > *a.  A single-family residential property or building lot; and*
> >
> > *b.  Property used for noncommercial recreational purposes; or*
>
> *(2)    The contributing watershed is less than or equal to 200 acres and the average stream approach channel slope is less than or equal to 7.5% for all other properties, including single-family subdivisions.*

*(b)    Tier one stream crossings projects shall be subject to the general design considerations specified in Env-Wt 904.01 but shall not be subject to the design criteria for tier 2 and tier 3 stream crossings specified in Env-Wt 904.05.*

*(c)    Tier one stream crossings shall be sized so as to preserve watercourse connectivity and to accommodate the greater of:*

> *(1)    The 25-year frequency flood; or*
>
> *(2)    Applicable federal, state, or local requirements.*

*(d)    Subject to (e), below, new and replacement tier one stream crossings shall be bridge spans, pipe arches, or open bottom culverts with stream simulation.*

*(e)    The applicant shall use an alternative design only if:*

> *(1)    Installing a bridge span, pipe arch, or open-bottom culvert with stream simulation is not practicable; and*
>
> *(2)    The applicant submits a technical report prepared by an environmental scientist or professional engineer with experience and qualifications in the discipline of fluvial geomorphology explaining:*
>
> > *a.  Why site conditions preclude the strict application of the rules as written;*
> >
> > *b.  Why the proposed alternative design better meets the intent of retaining natural geomorphic characteristics of the site; and*
> >
> > *c.  How the alternative design meets the general design criteria in Env-Wt 904.01.*

(f)    *Construction involving in-stream work shall be limited to low flow conditions.*

(g)    *Crossings that require excavation in flowing water shall use best management practices, such as temporary by-pass  pipes, culverts, or cofferdams, so as to maintain normal flows and prevent water quality degradation.*

(h)    *Tier one stream crossings shall not require compensatory mitigation, provided the requirements of this section are met.*

*Env-Wt 904.03  <u>Tier 2 Stream Crossings</u>.*

(a)    *A tier 2 stream crossing shall be a crossing located on a watercourse where:*

(1)    *The contributing watershed is greater than 200 acres and less than 640 acres; or*

(2)    *The average stream approach channel slope is greater than 7.5% and less than 20%.*

(c)    *Subject to (d), below, new and replacement tier 2 stream crossings shall be bridge spans, pipe arches, or open bottom culverts with stream simulation.*

(d)    *The applicant shall use an alternative design only if:*

(1)    *Installing a bridge span, pipe arch, or open-bottom culvert with stream simulation is not practicable; and*

(2)    *The applicant submits a technical report prepared by an environmental scientist or professional engineer with experience and qualifications in the discipline of fluvial geomorphology explaining:*

a.  *Why site conditions preclude the strict application of the rules as written;*

b.  *Why the proposed alternative design better meets the intent of retaining natural geomorphic characteristics of the site; and*

c.  *How the alternative design meets the general design criteria in Env-Wt 904.01.*

(e)    *Construction involving in-stream work shall be limited to low flow conditions.*

(f)    *Crossings that require excavation in flowing water shall use best management practices, such as temporary by-pass  pipes, culverts, or cofferdams, so as to maintain normal flows and prevent water quality degradation.*

(g)    *Replacement of an existing stream crossing that would be classified as tier 2 based on watershed size or average stream approach channel slope but that does not meet the design criteria specified in Env-Wt 904.05 shall meet the general criteria specified in Env-Wt 904.01 and require compensatory mitigation.*

(h)    *New or replacement tier 2 stream crossings that meet the requirements of this section and Env-Wt 904.05 shall not require compensatory mitigation.*

*(i)     Plans for tier 2 stream crossings shall require a professional engineer's stamp.*

*Env-Wt 904.04  <u>Tier 3 Stream Crossings</u>.*

*(a)     Subject to (b), below, a tier 3 stream crossing shall be a crossing located on a watercourse where:*

    *(1)     The contributing watershed is 640 acres or greater;*

    *(2)     The average stream approach channel slope is 20% or greater; or*

    *(3)     The crossing raises special resource considerations because it is located:*

        *a.  Within a designated river corridor;*

        *b.  Within an area that is impaired;*

        *c.  Within the drainage area feeding an outstanding resource water;*

        *d.  Within a 100-year flood plain;*

        *e.  In a jurisdictional area having a documented endangered or threatened species or exemplary natural community as identified by the New Hampshire department of resources and economic development, division of forest and lands, natural heritage bureau;*

        *f.  In or within 100 feet of a designated prime wetland; or*

        *g.  Is a project or part of a project that is otherwise classified as major pursuant to Env-Wt 300.*

*(b)     The applicant for a project in which a stream crossing is categorized as tier 3 based solely on (a)(3)b., c., d., or e., above, may request that the crossing be categorized as a tier 1 or tier 2 stream crossing, as applicable based on watershed size or average stream approach channel slope, if the impacts to the resource are specifically mitigated.*

*(c)     Tier 3 stream crossings shall be open-bottomed culverts or bridge spans, not embedded or closed culverts.*

*(d)     Replacement of a legally-permitted tier 3 stream crossing with a stream crossing that meets the requirements of Env-Wt 904.05 shall not require compensatory mitigation.*

*(e)     New tier 3 stream crossings shall require compensatory mitigation as specified in Env-Wt 800.*

*(f)     Plans for tier 3 stream crossing shall require a professional engineer's stamp.*

*Env-Wt 904.05  <u>Design Criteria for Tier 2 and Tier 3 Stream Crossings</u>.  New and replacement tier 2 and tier 3 stream crossings shall be designed and constructed:*

*(a)     In accordance with the NH Stream Crossing Guidelines, University of New Hampshire, May*

*2009,  which can be downloaded for free at http://www.unh.edu/erg/stream_restoration/;*

*(b)    With the bed forms and streambed characteristics  necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing;*

*(c)    To provide a vegetated bank on both sides of the watercourse to allow for  wildlife passage;*

*(d)    To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and prevent the restriction of the natural floodplain;*

*(e)    To accommodate the 100-year frequency flood, to ensure that:*

*(1)    To the maximum extent practicable, there is no increase in flood stages on abutting properties;*

*(2)    Flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability; and*

*(3)    Is consistent with the requirements of Env-Wq 1500 relative to not allowing any increase in flood stages on abutting properties and requiring that flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability and surface water quality;*

*(f)    To simulate a natural stream channel; and*

*(g)    So as not to alter sediment transport competence.*

*Env-Wt 904.06  Criteria for Upgrading Existing Stream Crossings.*

*(a)    As part of an application for upgrading an existing tier 2 or tier 3 stream crossing, the applicant shall provide an assessment of the geomorphic compatibility of the existing stream crossing based on the NH Stream Crossing Guidelines, University of New Hampshire, May 2009, which can be downloaded for free at http://www.unh.edu/erg/stream_restoration/.*

*(b)    Subject to (c) and (d), below, replacement tier 2 or tier 3 stream crossings shall comply with the specific design criteria in Env-Wt 904.05.*

*(c)    The applicant shall propose an alternative design only if:*

*(1)    Installing the structure specified in these rules is not practicable; and*

*(2)    The applicant submits a technical report prepared by an environmental scientist or professional engineer with experience and qualifications in the discipline of fluvial geomorphology explaining:*

*a.  Why site conditions preclude the strict application of the rules as written;*

*b.  Why the proposed alternative design better meets the intent of retaining natural geomorphic characteristics of the site; and*

        *c. How the alternative design meets the general design criteria in Env-Wt 904.01.*

    *(d)    The department shall approve an alternate design that does not meet the specific design criteria in Env-Wt 904.05 if:*

        *(1)    The modification to the existing crossing proposed by the applicant results in a stream crossing that more closely meets the specific design criteria; and*

        *(2)    The requirements of (c), above, are met.*

### APPENDIX

| Rule Section(s) | Statute(s) Implemented |
| --- | --- |
| Env-Wt 900 | RSA 482-A:1 & 3; RSA 482-A:11 |